



From Sewage to Seining: Youth Explore Environmental Careers



ALSO:

Reducing Winter Salt Application





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NEIWPCC is a regional commission that helps the states of the Northeast preserve and advance water quality. We engage and convene water quality professionals and other interested parties from New England and New York to collaborate on water, wastewater, and environmental science challenges across shared regions, ecosystems, and areas of expertise.

Interstate Waters

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FROM THE EXECUTIVE DIRECTOR

Welcome to Volume 8, Number 1 of NEIWPCC's Interstate Waters. While perusing this publication,

readers should gain a sense of the nimble, diverse organization NEIWPCC is – both within our work and by the industrious, dedicated NEIWPCC staff who make it happen.



NEIWPCC's critical objectives and strategic goals define us and reflect our regional and national activities, guiding our efforts today and into the future.

One of our critical objectives centers on workforce development. Daily we strive to deliver programming and services that attract and retain a diverse, talented group of water quality professionals to our staff, as well as to the water resource field. NEIWPCC's video spotlight(s) on our staff activities to advance clean water as well of our ongoing Commissioner series are examples of this exemplary work. We consistently seek to ensure our team is committed to our work and sees its ongoing value.

We have also spent decades working with our youth to educate them on the multitude of career opportunities that exist when working with water. We are proud of our efforts and continuously work to increase our presence and educational opportunities. Interested parties should reach out to us and see if there are prospects for us to partner together.

We are also committed to using our data, resources, and network to encourage the public, policymakers, and other influences to support our vision of clean water managed sustainably throughout the Northeast. Please review this publication and our website to review the work NEIWPCC is undertaking.

As we move into the spring of 2024, NEIWPCC remains committed to our vision for clean and sustainable water throughout the Northeast.

My best regards to you,

Susan J. Sullivan
NEIWPCC

Interstate Waters

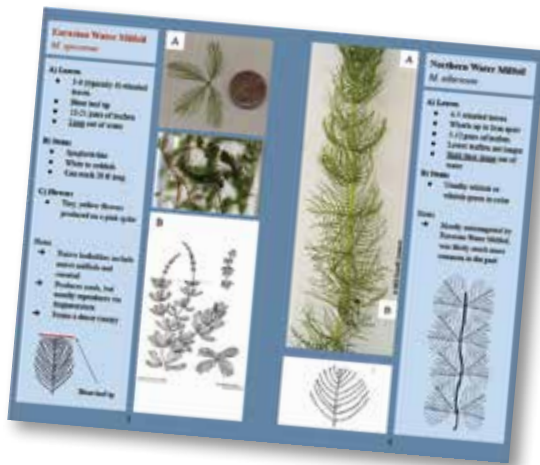
Volume 8, Number 1

CONTENTS

- 2** Highlights From NEIWPC and Our Partners
- 6** From Sewage to Seining: Youth Explore Environmental Careers
- 9** Hold the Salt: Reducing Winter Salt Application
- 12** New York Teachers Wade Into Estuary Education
- 13** Making Waves
- 14** Events

Hudson River Aquatic Plant Guide Now Available

A new identification guide of the unique suite of plants found in the Hudson River Estuary and its tributaries is now available on the Hudson River National Estuarine Research Reserve (HRNERR) website. "Aquatic Plants of the Northeast" documents regional variations of both native and nonnative plants and supports the identification of early emerging invasive species—a key goal of the resource. Each species profile includes identifying information about its leaves, flowers and fruit, stems, and seeds, as applicable, as well as key species notes, line drawings and photos. The guide was created by the Hudson River Aquatic Invasive Species Task Force, a group of state, nonprofit, and community partners that coordinate invasive species monitoring and control in the Hudson River watershed. NEIWPCC Environmental Analyst Lindsay Charlop, who coordinates HRNERR's collaborative programs, co-authored the publication.



goal of reestablishing salmon runs in the largest tributary on the New York side of Lake Champlain. The Imperial Mills Dam will then remain as the only obstacle on the river. However, after the New York State Department of Environmental Conservation installs a fish ladder at that location, slated for completion by 2026, the salmon will be able to access 13 miles of spawning habitat on the river's mainstem, and another 18 miles on tributaries, for the first time since the American Revolution.

National State Revolving Fund Workshop Explores Water Quality

NEIWPCC, in collaboration with the EPA, states, and other partners, hosted the National State Revolving Fund Workshop in Raleigh, North Carolina in July 2023. Session topics included watershed partnerships, green infrastructure, program fraud and auditing, technical assistance, software strategies, and new funding opportunities to address emerging contaminants.

Speakers included NEIWPCC commissioner Nisha Patel, director of the Water Planning and Management Division at the Connecticut Department of Energy and Environmental Protection; Raffael Stein, EPA Water Infrastructure Division director; and Anita Thompkins, EPA Drinking Water Infrastructure Development Division director, who gave an overview of new federal funding and initiatives. Discussions focused on how to use funding to achieve water quality goals, and strategies for connecting disadvantaged, rural and tribal communities with the financial and technical resources to meet standards and improve public health.

Dam Removal Advances Atlantic Salmon Restoration

Two dams that stand between Atlantic salmon and an upstream spawning habitat on the Saranac River in New York are coming down—the culmination of years of collaboration among the U.S. Fish and Wildlife Service, public-private partners, and funding from the Lake Champlain Basin Program. The removal of the Indian Rapids and Fredenburgh Falls dams advances the

New Developments in Preventing Leaking Underground Storage Tanks

The latest issue of LUSTLine (#93), the national publication of record for the underground storage tanks community, looks back at the history of the underground storage tanks industry, while also highlighting some of the newest developments in the field. Marcel Moreau, a nationally recognized petroleum



Downstream from the Indian Rapids Dam on the Saranac River in New York.

U.S. Fish and Wildlife Service

storage specialist, investigates the impact that the Veeder Root TLS 350 has had in preventing fuel tanks from leaking through quick detection and early notification. Other articles examine the effectiveness of high-resolution site characterization and explore strategies for expediting the cleanup process for leaking underground storage tanks. The issue also features an interview with Gina Miranda, project manager on the tanks subcommittee with the Association of State and Territorial Solid Waste Management Officials.

Videos Spotlight Staff Advancing Clean Water Efforts

In a new video series available on the NEIWPCC website and social media channels, viewers can learn about the work of NEIWPCC staff to preserve and advance water quality in the Northeast, providing a behind-the-scenes glimpse of environmental careers. The videos feature staff protecting the Lake Champlain basin from aquatic invasive species; developing source water protection plans in New York state; collaborating on a submerged aquatic vegetation project with the Hudson River National Estuarine Research Reserve; and discussing research surrounding agricultural tile drains in the Lake Champlain basin. The staff members also share their career journeys and offer advice to those interested in entering the field.



Meg Modley, environmental analyst and Lake Champlain Basin Program aquatic invasive species management coordinator.

Mercury Contamination in Fish Tissue

An analysis of tissue samples by the University of Connecticut detected largemouth bass with high mercury concentrations in several state waterbodies. Human consumption of contaminated fish tissue can result in cardiovascular and nervous system damage, and in the case of prenatal health, may lead to developmental and cognitive issues for children. Mercury can also have negative effects on aquatic organisms. As one of the prevailing predators in Connecticut waters, the largemouth bass's position on the food chain makes it highly susceptible to mercury contamination due to bioaccumulation, which occurs



when a chemical gradually builds up in an organism's body through the consumption of contaminated prey. Connecticut's Department of Energy and Environmental Protection produces annual fish advisories to regulate which species are safe to consume at each waterbody. The results of this study will be used to update future public health advisories and outreach efforts.

Stormwater Mitigation Program Rewards Homeowners

In 2023, the Long Island (New York) Garden Rewards Program provided more than 200 homeowners with grants of up to \$500 to help cover the cost and maintenance of stormwater runoff mitigation projects on their property, including rain barrels, native plant gardens and rain gardens.

Rain barrels conserve water consumption by collecting and storing water for homeowners to later use in their yards and gardens. Native plantings, which are heartier and more resilient to local climate conditions, can reduce water usage, reduce fertilizer and pesticide usage, and promote biodiversity. Rain gardens collect water from roofs, driveways and other surfaces and allow it to soak into the ground. The gardens filter stormwater before it reaches local waterways, mitigate flooding caused by pavement, and enhance yards with low maintenance landscaping. The program is a partnership between the Long Island Regional Planning Council, New York State Department of Environmental Conservation, Long Island Sound Study and NEIWPCC.



Native plant gardens support healthy ecosystems.

Mapping the Hudson River Estuary Shoreline

NEIWPCC staff at the Hudson River Estuary Program mapped the shoreline via boat survey from Tarrytown to Troy, New York. The team identified and inventoried a total of 1,332 shoreline segments, documenting the conditions of engineered

HIGHLIGHTS FROM NEIWPCC AND OUR PARTNERS



Dan Miller

NEIWPCC's Dan Miller performs a shoreline survey with NYSDEC/Cornell's Beth Roessler.

and natural shoreline sections. They uploaded this field data and site photos to an online GIS database, resulting in a geo-referenced map and inventory of the Hudson River shoreline that includes site-by-site descriptions and photos. This data will be used by regional resource managers, municipalities and interested members of the public to better understand the shoreline composition, examine the relative amounts and location of shoreline types, and inform management and development decisions.

National Nonpoint Source Workshop Focuses on Collaboration

NEIWPCC hosted a four-day National Nonpoint Source (NPS) Training Workshop in Minneapolis in November 2023, which included interactive workshops, expert panel presentations, networking opportunities and social events. Key topics focused on environmental justice, updates to Section 319 guidelines, coastal NPS management, tribal programs and responses to climate change. The event also offered an exploration of collaborative strategies, emphasizing the interconnectedness of agencies, communities, and states working with Section 319 of the Clean Water Act.

A poster session featured research findings and innovative programs, and provided a platform for attendees to exchange insights, establish connections, and share knowledge from across the country. The posters covered subjects such as bioretention, the Gulf of Mexico Hypoxia Task Force, social media messaging, and engaging communities around drinking water through art. The agenda and recordings of the presentations are available on the workshop webpage.

Improved Water Quality Creates Significant Economic Value

The New York-New Jersey Harbor and Estuary Program (HEP) and NEIWPCC released the first-ever report calculating the economic value of clean water in the New York-New Jersey Harbor Estuary. The results show that even relatively modest water quality improvements, such as those that would achieve nutrient/pollutant levels safe for paddling and boating, are valued by households and can yield significant economic benefits like increased property values, decreased health risks from water contact, and improved appearance and smell. HEP anticipates that the study will be used as a stepping stone for further research to identify additional economic benefits and ecosystem services related to water quality improvements in the Harbor Estuary.

Nutrients in Water: Season Two of the Clean Water Pod

Season two of the "Clean Water Pod" podcast focuses on nutrient-related success stories from across the country. Host Jeff Berckes kicked off the first episode by speaking with Jamie Vaudrey, assistant research professor with the Department of Marine Sciences at the University of Connecticut and research coordinator for NOAA's Connecticut National Estuarine Research Reserve, and James Cotner, professor of ecology, evolution and behavior at the University of Minnesota, about the



role of nitrogen and phosphorus in water quality.

All episodes of the Clean Water Pod are available on Spotify, Apple and Google podcasts. Through perspectives and stories from across the country, the “Clean Water Pod” explores the challenges and successes of restoring and protecting water quality. The podcast is funded by a grant through the EPA and produced by Flip the Field and NEIWPCC.


Comment Letters Provide a Regional Voice on National Issues of Concern

In February, NEIWPCC sent a letter to Michael S. Regan, administrator of the U.S. EPA, in response to the proposed Lead and Copper Rule Improvements. The letter stressed the need for additional staffing to comply with the new rules. It also stated that based on a review of the costs, the proposed funding would fall short of what is required. Additionally, a strategy is necessary from the EPA to make a reasonable effort in effective communication with homeowners. NEIWPCC also points out the need for corrosion control and the proper disposal of millions of tons of waste generated from the replacement of lead service lines.

Last December, NEIWPCC sent a comment letter to the EPA’s Office of Wastewater Management, Water Permits Division, requesting an extension regarding draft guidance for implementing the Supreme Court’s *County of Maui v. Hawaii Wildlife Fund* Decision. NEIWPCC requested a 60-day extension to the comment period for the proposed guidance, to give the states time to thoughtfully evaluate the guidance document and provide sufficient feedback.

NEIWPCC’s Annual Scope of Work Detailed for Each Member State

Every year, NEIWPCC produces individual annual reports for each of its member states, summarizing the scope of work accomplished in the previous fiscal year as well as collectively across the region. The 2022-2023 “State Summaries” are now available on the NEIWPCC website, highlighting some of the most pressing clean water challenges facing the Northeast, including per- and polyfluoroalkyl substances (PFAS), climate change impacts, invasive species and nitrogen pollution; and presenting NEIWPCC’s programs and projects to address these concerns.

The reports also recap NEIWPCC conferences, which provided opportunities for water professionals and stakeholders to connect on both a regional and national level; and NEIWPCC’s Executive Committee and Commission meetings throughout the year that bring together the leaders in the states’ environmental and health agencies, as well as experts from the private sector and EPA representatives, to identify and discuss water-related concerns. 

For more information about these stories, visit NEIWPCC’s website at www.neiwpcc.org to view the “News” page. Sign up for NEIWPCC’s monthly e-newsletter, *Streamlined*, at the bottom of the homepage.

12th U.S. Symposium on Harmful Algae

October 27 – November 1, 2024

Holiday Inn Portland by the Bay, Portland, Maine

This year’s theme, “ONE BLOOM: Unifying HAB Science in Aquatic Ecosystems,” seeks to identify and highlight commonalities across diverse study systems and disciplines within Harmful Algal Bloom (HAB) research. Sessions and discussions will foster a unified understanding that integrates perspectives and approaches in HAB science, and equips researchers, managers, and policymakers with the knowledge needed to address this pressing environmental challenge.

Submit abstracts by May 8.

Registration will open in June. For more information, go to <https://neiwpcc.org/events/ushab12/>.

For general questions, contact HABS@neiwpcc.org.



From Sewage to Seining:

Youth Explore Environmental Careers

BY CHEYENNE ELLIS

A group of high school students trudge down the coastal forest path, swatting bugs away from their faces and grumbling as they make their way toward the beach. All at once, the woody debris beneath their feet turns to sand and the forest gives way to views of the Atlantic Ocean. The students let out a collective sigh, both at the scenery and the sea breeze keeping the bugs at bay.

These young people are on a field trip with the Seacoast Science Center (SSC) in Rye, New Hampshire as part of their participation in the Youth and the Environment Program (YEP). They set up sampling gear on the beach, including a long seine net for catching aquatic organisms, and a few students volunteer to get their feet wet. They grab the edges of the net and enter the water, dragging it through a submerged bed of eelgrass. As they make their way back to shore, the others gather around, waiting to see what has been caught.

The students lay the net on the beach and kneel beside

Cheyenne Ellis is an information officer in NEIWPCC's Communications and Outreach Division.

it, picking through the seaweed in search of animals. As they sift, they get a glimpse of the coastal ecosystem: snails, crabs, small fish and even some invasive species. They collect the organisms in buckets and take turns examining each one.

As the initial excitement winds down, Brian Yurasits, who is both an information officer at NEIWPCC and a community outreach manager for the SSC, explains to the students how their work improving water quality at wastewater treatment plants benefits downstream marine ecosystems like this one.

The U.S. Environmental Protection Agency (EPA) created YEP in 1990 to introduce students to careers in the wastewater industry. Since then, NEIWPCC has received annual funding to run YEP, which provides paid positions each summer to underserved youths, allowing them to gain experience through hands-on work, educational lessons and weekly field trips.

"For a lot of young folks, wastewater treatment is not a career that they consider," said James Plummer, an environmental analyst who got his start at NEIWPCC as a coordinator for YEP in 2016. Plummer now works in the Wastewater and Onsite Programs Division and is a supervisor of the YEP programs. "But it is a great profession. There are high paying jobs, and it is mentally stimulating."



The Massachusetts-based program began in Lowell, before expanding to Lawrence. Both programs returned in the summer of 2023 for the first time since 2019, following a three-year hiatus due to the COVID-19 pandemic. A similar program also runs in New York City.

Plummer said that the goal of YEP is not necessarily to create the next generation of wastewater operators, but rather to give young people the opportunity to better understand the world around them and their relationship with it.

In addition to teaching students about wastewater, YEP serves as an introduction to the workforce for many of the participants, providing them with a way to learn professional skills and gain experience. The coordinators helped improve the students' knowledge about writing a resume, applying for jobs and planning for careers. When the students received their first paychecks, they were given a lesson on financial literacy, because for many of them, it was their first paid position.

Last summer's cohort of YEP participants arrived at their assigned treatment plants in July, apprehensive about working in an environment with such a strong odor. Nevertheless, as the summer went on, the students — and their noses — began to adapt to the challenges, complexities and the fulfillment of working at a wastewater treatment plant.

"Being employed alongside people who are much older than you can be intimidating," said YEP Coordinator Daphne Short. "But by the end of the summer, the students were able to talk and work with anyone in the plant."

The Massachusetts Programs

The YEP session in Lowell kicked off at the Lowell Regional Wastewater Utility, which receives wastewater and stormwater from the city and the surrounding towns of Chelmsford, Dracut, Tewksbury and Tyngsborough. The plant treats an average of 25 million gallons of water per day and discharges the water into the nearby Merrimack River.

Lowell's YEP was led by Short, who had recently graduated from the University of Texas at El Paso with a bachelor's in environmental science. Short said that her studies focused on water scarcity and geology, and she wanted to share her passion for environmental protection with others.

"I really value being a mentor for my students," she said. "This program is so much more than just environmental literacy but encourages these students to grow into well-rounded young adults."

The participants stationed at the Lowell plant were selected by MassHire Lowell Career Center, and included a biology student at Middlesex Community College, and a junior and a recent graduate of Lowell High School.

At the same time, a cohort of students began their YEP program in Lawrence, where they were stationed at the Greater Lawrence Sanitary District (GLSD), another treatment plant which discharges into the Merrimack River. GLSD treats around 52 million gallons of wastewater per day for Massachusetts communities including Lawrence, Methuen, North Andover,



Andover and Dracut, as well as Salem, New Hampshire. This is the second year YEP was held in Lawrence.

The Lawrence students drew from Abbot Lawrence Academy and Essex North Shore Agricultural and Technical School. They were supervised by Evan Bartow, a recent graduate from the University of Maine with a bachelor's in marine science. He said what drew him to the program was the opportunity to work with young people and teach them about environmental processes that most people are not aware of.

"The YEP program shows students an almost hidden industry," said Bartow. "None knew what happens to water after it goes down the drain and this was an eye-opening experience for them."

While working at the plants, both groups of students learned from staff across all departments at the facility including operators, lab technicians, engineers and electricians. In addition,

they participated in a variety of tasks involved in maintaining a wastewater treatment plant such as hosing down settling tanks, cleaning dissolved oxygen probes and inspecting city infrastructure.

After spending the day in the field, students continued their learning through hands-on lessons led by Short and Bartow, which ranged in topics from climate change and renewable resources to water scarcity and environmental justice. Typically, presentations on each unit were followed by group discussions, interactive activities and small presentations, which allowed students to consider how the topics overlapped.

"As the youths learned about different aspects of environmental science, they saw how so many of those areas linked together and you could see their wheels turning," said Short.

Exploring Careers in the Surrounding Areas

While the students gained experience working at the plants and learning in the classroom, several stated that the highlight of the program was the weekly field trips. Both Massachusetts YEP sections visited locations including local aquariums and science centers, the EPA Region 1 Lab, a wetland and other wastewater treatment plants including Deer Island in Boston, the second largest in the country.

"On our field trips, we met people who were willing to help and teach us, not just about wastewater, but skills that we can use in school and jobs as well," said Rachel Diep, a senior at Abbott Lawrence Academy.

The trips gave students the opportunity to learn hands-on techniques like seine netting, testing water samples and classifying soil types. Additionally, they were able to meet and work with professionals from various environmental careers.

"I learned about networking," said Chelsea Truong, also a senior from Abbott Lawrence Academy. "On the field trips, people would tell us the importance of meeting new people and building connections."

On one trip, YEP partnered with a wastewater operator training group based in Boston. X-Cel Conservation Corps aims to provide people of color with the opportunity for a career in

wastewater management through workforce development. The Lowell cohort met up with X-Cel at locations along the Neponset River, where the students were taught to take water samples and measure pH, electrical conductivity, temperature and the presence of E. coli. Short noted that this field trip was easily a favorite among the group, as the students resonated with the organization's goal of diversifying the industry. "My group was all students of color, so I think it was really nice for them to see people like them in the industry," she said.

New York City YEP

Nine young people, including three college students, participated in the New York City program. They were selected from the South Bronx area by the Woodycrest Center for Human Development, which has a contract with the city's summer youth employment program.

The group received placements at four different wastewater treatment plants throughout the city: Wards Island Wastewater Treatment Plant in Manhattan, Newtown Creek Wastewater Treatment Plant in Brooklyn, North River Sewage Treatment Plant in western Manhattan and Hunts Point Water Pollution Control Plant in the Bronx.

The students were assigned a mentor and tasked with supporting a specific division. Some assisted with pre-treatment sampling or plant operations and maintenance, while others were stationed in the process control lab or the central office. Additionally, they all attended an Environmental Career Opportunities workshop, which was held at the EPA Region 2 office.

The Future of YEP

At the end of summer program, the EPA held a graduation ceremony for the students. In Massachusetts, the ceremony involved participants giving a tour of their wastewater treatment plants and leading a recap presentation of their experience to representatives from the EPA.

One of the participants, Billy Sonfack Dongsan, who is a biology student at Middlesex Community College, was

offered a part-time position working in the laboratory at the Lowell Regional Wastewater Utility through connections he made from YEP.

Whether or not the rest of the students pursue careers in the wastewater industry, they now have an experience they can share with others in their communities.

"YEP has definitely changed my view of wastewater," said Diep. "I did not know that treatment plants existed and had no idea this plant was right in my backyard."

The program was also an educational experience for the two coordinators, who spent the summer learning about the industry alongside their students. "My time as a coordinator has really reaffirmed that I want to do something with environmental science, communication and outreach," Bartow said.

As for the wastewater industry's future, programs like YEP could help recruit young workers into the industry, with many job vacancies soon to open up as the aging workforce begins to retire. This presents opportunities for students seeking to avoid the expenses of a college education, as many of these positions require only a few months of training. Plummer said that he is exploring options for evolving the program into more of a workforce pipeline.

"I have been connecting with utilities to explore opportunities and obstacles to starting YEP-like programs from scratch," said Plummer. He believes that pairing utilities with local career centers, technical and vocational schools and funding sources is a crucial first step to creating avenues for young people in this field. 🌈



A graduation ceremony was held for the YEP students at the end of the program, joined by Justin (Jay) Pimpare (left), regional pretreatment coordinator, EPA New England; and Mark Spinale (right), chief, Municipal Assistance Section (SRF loans) EPA New England.



Hold the Salt: Reducing Winter Salt Application

BY BETH MACBLANE

Across the globe and especially here in the Northeast, a dramatic increase in sodium chloride concentrations in freshwater has been documented due, in large part, to road salt application. Originating as a practice in New Hampshire in the 1940s, the use of de-icing salts in the region has increased exponentially. As the population grew, so too did the number of vehicles and amount of impervious surfaces such as roads and parking lots, fueling our addiction to road salt. Today, an estimated 25 million tons of salt is scattered on roads across the United States annually.

While de-icing salt application is essential for winter travel and public safety, it comes at a cost. Sodium chloride (NaCl) – the most common type of road salt – ends up in surface and groundwater through stormwater runoff, posing a public and environmental health concern. Additionally, once it enters the environment, it is difficult to remove – just one teaspoon of salt permanently pollutes five gallons of water.

“With our New England winters, road salt pollution is a critical issue to our region,” said Christina Stringer, NEIWPCC director of Wastewater and Onsite Programs. “We know we are pumping a lot more salt into our rivers, lakes, and streams than we used to, and this is having negative results on aquatic ecosystems and our drinking water.”

Road salt works by lowering the freezing point of water, making ice melt even when the temperature is below water’s normal freezing point of 32 degrees. When salt dissolves in water, it breaks into two ions, sodium and chloride, which then make their way into the environment. Not surprisingly, research

shows that waterbodies in dense urban areas with more runoff from roads and parking lots contain higher concentrations of sodium and chloride than their less developed counterparts.

Sodium Chloride: More Than Just a Grain of Salt

The physical and chemical properties of water are affected by both sodium and chloride, impacting ecosystem health. Chloride is highly soluble, mobile and there is no natural process to break it down or metabolize it. High chloride levels can lead to oxygen depletion in water, limiting a necessary component for aquatic life. Additionally, chlorides can form a dense, oxygen-deficient layer in the water column that can be harmful to fish and other aquatic life and inhibit spring turnover in some lakes.

Winter road de-icing also impacts wildlife: from freshwater fish and aquatic bugs whose growth is slowed from the salty runoff, to deer and moose who like to lick the salt on roadways making them more prone to vehicle collisions. Chlorides can also poison smaller mammals and birds, and make pets sick if ingested. Plants, too, are negatively affected by salty soils along roadsides. These soils retain less water and nutrients, making them less habitable and more susceptible to erosion and runoff.

Another concern with salt pollution is its impact on and removal from drinking water. As road salt runs off to nearby waterways and infiltrates the ground, it can contaminate drinking water wells, aquifers and reservoirs. Beyond the salty taste, elevated levels of sodium in drinking water can pose a problem for people on a low-sodium diet and, more seriously, for those with certain medical conditions such as high blood pressure.

Additionally, sodium chloride can eat away at essential

continued on page 10

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infrastructure. Bridges, roads, culverts, pipes, plumbing and vehicles can be corroded and deteriorated by road salt, making them unsafe and causing expensive repairs. Every year in the U.S., road salt causes an estimated \$5 billion in corrosion damage. Furthermore, the corroded metal can leach into surface and groundwater, causing even more harm to water quality.

Transitioning to a Low-Salt Diet

“The over application of winter road salt has become increasingly common,” said Aubrey Voelker, coordinator of the Salt Reduction and Green SnowPro Programs with the New Hampshire Department of Environmental Services (NHDES). “More salt is being applied than is necessary to keep our roads safe and is not always being applied in the most effective way.”

One solution to sodium chloride pollution is decreasing its use in the first place, which has proved to be a challenge for many states. Part of the issue is that many entities apply de-icing salt, such as state transportation departments, municipal public works, private companies, contractors and individual homeowners. Each entity may have their own protocol and management practice for salt application which can be influenced by the demands and expectations of the customer, as well as the public perception about the quantity and frequency of salt needed to ensure road, parking lot, and walkway safety. The state of New Hampshire’s voluntary salt reduction program (Green SnowPro) addresses these factors in a multi-pronged and innovative approach.

Road Salt Certification in New Hampshire

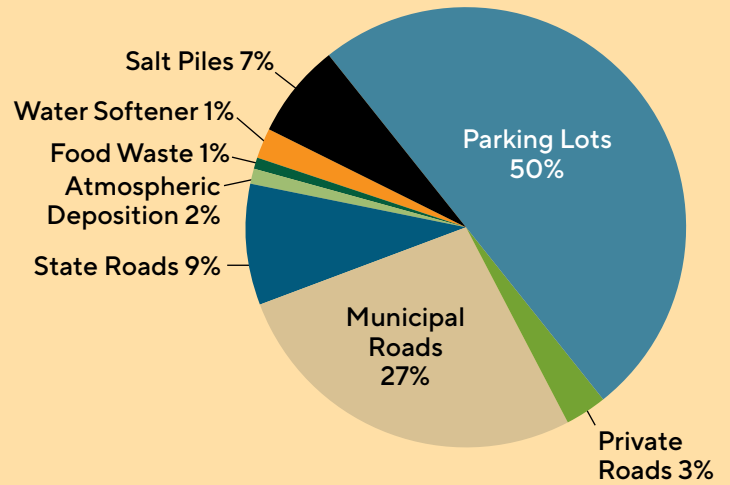
The first state to adopt a general policy of using road salt now has a first-in-the-nation, voluntary, road salt certification program to help curb its use. According to the NHDES, salt use has doubled in the last 40 years to an average of 400,000 tons of road salt applied annually. They have also found that chloride is entering drinking water wells at an alarming rate across the state with reported contamination increasing by 150% over the past 30 years.

In the early 2000s, due to the Interstate 93 (I-93) widening project (a major north-south highway in the state), the New Hampshire Departments of Transportation and Environmental Services and the U.S. Environmental Protection Agency (EPA) conducted environmental impact studies in the southern portion of the state. Their monitoring effort detected violations of water quality standards for chlorides in four watersheds, including exceedances of the EPA-designated chronic and

NEIWPCC’s Role

NEIWPCC funds scientific studies on the water quality impacts of road salt pollution across the Northeast. Chloride pollution and the salinization of our freshwater resources is a frequent topic at the many workgroup meetings and conferences and workshops that NEIWPCC hosts. Additionally, working with the EPA’s Chloride Technical Management Workgroup, NEIWPCC developed and hosts a Chloride Resources Clearinghouse on our website. The clearinghouse aims to inform community decisions about innovative and alternative chloride reduction strategies and has nearly 100 resources available across a variety of topics.

Estimated Sources of Salt in New Hampshire



Data extrapolated from the I-93 TMDL and provided by the NHDES.

acute chloride toxicity levels – both of which are known to kill fish.

This prompted further data collection by the NHDES to prepare Total Daily Maximum Load (TMDL) plans for chloride impairment for the four watersheds in 2006-2007. The TMDLs outlined a salt-use reduction of 25-45% to meet water quality standards.

These four watersheds were a microcosm of chloride pollution throughout the state. In 2008, 18 water bodies were listed as chloride-impaired on the Clean Water Act 303(d) list of impaired waters in New Hampshire. In 2010, 40 water bodies were listed and by 2022 that number had climbed to 46.

The TMDL studies revealed that the state Department of Transportation (NHDT) was not the primary source of salt despite maintaining large roadways. The major contributors were private companies applying salt to parking lots, sidewalks and driveways – totaling 50% of the chloride load to the study area’s impaired waterbodies. These results have been extrapolated by NHDES to project estimated sources of winter salt use across the state.

Enter the Green SnowPro Certification Program

To address the biggest source of salt in New Hampshire, a voluntary commercial salt reduction program was launched in 2013. Managed by the NHDES, the Green SnowPro Certification Program arms commercial salt applicators with state-of-the-art salt reduction practice knowledge that prioritizes public safety while reducing salt usage.

New Hampshire salt applicators are eligible for Green SnowPro certification upon attending a training, passing the exam, and submitting an application and fee. Training topics include an overview of the chemical composition of road salt and how it melts ice, calibration of salting equipment, brine and pre-treating roadways, and efficient property management best practices. Applicators are required to renew their certification annually with NHDES and take a refresher course every two years. The program certifies individuals as well as master trainers who are eligible to train their employees to increase efficiency and bring operating costs down.



Attendees learn about salt storage during the New Hampshire Annual Salt Symposium.

“Contractors quickly realized that they wanted to use the Green SnowPro training to reduce salt but were worried about increasing their liability in slip and fall cases,” said Ted Diers, assistant director of the Water Division at NHDES. “The limited liability relief legislation was the answer to that concern.”

A significant – and unique – factor in the program’s success was the inclusion of limited liability insurance against damages arising from snow and ice conditions. Notably, the limited liability protection is not just for the commercial salt applicators certified by the Green SnowPro program, but extends protection to the property owners or managers who hire them as well, so long as best management practices are being followed.

Certified Green SnowPro applicators are required to keep winter snow and ice records, including the type of de-icing materials used, the rate or quantity of de-icing materials applied, the dates of treatment, and the weather conditions for each event requiring de-icing. This is essential for the limited liability protection should a claim be issued and helps to inform the program success and track statewide salt usage.

“The value of the limited liability provision is two-fold,” said

Diers. “First, it attracts hundreds of contractors to take the training and track their salt use. That is the first step to salt reduction. And second, it creates converts. Many companies have seen the financial benefits of salt reduction and the use of innovative methods and equipment.”

For the 2023-2024 winter season, the granite state’s program certified more than 700 individual applicators and over 170 companies are participating. “The Green SnowPro program is a win-win-win,” continued Diers. “The environment wins, the contractor wins and the public wins.”

The most recent evolution of the Green SnowPro Program is a municipal version of the program, which was approved by the state senate in 2021 and is expected to launch for the 2024/2025 winter season. Representing more than a quarter of the state’s sources of salt, the municipal sector is an important addition to the initiative. Additional program updates include new online, hybrid, and in-person refresher course options, select courses being available in Spanish, and expanded public outreach.

Since removing road salt from water is difficult, New Hampshire’s certification program tackles unnecessary salt use from the outset to reduce environmental impacts and achieve water quality standards, while providing valuable liability protection to local companies. Other states, including Massachusetts, Vermont, Minnesota and Wisconsin, are using this approach to model their own voluntary salt reduction programs. In fact, a bill to offer limited liability insurance to contractors certified in salt application best practices passed the Wisconsin senate in January.

“One of the simplest things you can do is to stay home and off the roads during a winter storm if possible,” said Voelker. “Rethink that quick trip to the store at 10 p.m. during a blizzard wearing improper footwear for winter conditions.” 🌨️

Tips for Residential Salt Usage

- Shovel walkways and the driveway before snow turns to ice so there is no need for salting.
- Only apply salt around your home in the right conditions – salt is not effective at temperatures below 15° F.
- Use just enough salt required to melt the snow or ice. A 12-ounce coffee mug of salt is enough to treat a 20-foot-long driveway.
- Store de-icers in a dry, covered area to prevent runoff.



New York Teachers Wade into Estuary Education

BY REBECCA HOUSER

For three days each summer, energetic educators, teachers, and professionals from across New York state convene at the Norrie Point Environmental Education Center, located along the Hudson River in Staatsburg, New York. Here, they learn about estuary science from experts in the field and explore ways to use the estuary as a teaching tool. This is just one of many teacher training programs happening across the 30 National Estuarine Research Reserves as part of the Teachers on the Estuary (TOTE) program.

Participants use TOTE to increase their understanding of estuaries – dynamic, delicate, and critically important ecosystems known to be among the most productive environments on earth. Using estuary science topics ranging from water quality to fish, wetlands, and climate change, educators learn how to engage students in the investigation

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of their local environment. With the support of scientists, workshop attendees explore the various estuary habitats and their inhabitants, learn about local environmental issues, and conduct field investigations. They also share new curriculum resources and practice hands-on field activities that they can bring back to the classroom or education center. All learning activities are aligned with Next Generation Science Standards and state standards. Each year approximately 489 teachers participate in the workshops, reaching an estimated 12,714 students.

“You name it – hands-on, engaging, multi-disciplinary, and relevant to where and what you teach, this workshop had it all,” said Drew Hopkins, a TOTE program leader at the Five Rivers Environmental Education Center. “Not to mention the curriculum support, comradery of fellow educators and partnerships forged with local experts that we can bring back to our students in the classroom.”

Ongoing since 2016, the New York State Department of Environmental Conservation’s (NYSDEC) Five Rivers Environmental Education Center and Hudson River Estuary Program, along with the Hudson River National

Estuarine Research Reserve team up to provide a supportive and collaborative learning environment for interdisciplinary educators and scientists. Supporting teacher trainings that help implement place-based learning is an essential part of the educational goals of these partner programs, and TOTE participants are eligible for Continuing Teacher and Leader Education (CTLE) credits upon workshop completion.

Most recently, the 2023 Hudson River TOTE program focused on the connections between humans and the landscape. Twenty participants from the formal and non-formal education community were joined by science standards experts from the New York State Education Department, NYSDEC staff, former school administrators, and others working in the field. Topics included land-use planning and policy using science-based climate forecasts, changes to New York’s waterfront communities, sea level rise and how landscapes change over time. They also investigated local soil properties and how water travels through the soil.

A highlight of the 2023 workshop

continued on page 13

MAKING WAVES

Mae Kate Campbell, environmental analyst, and Matthew Vaughan, environmental analyst and chief scientist, both with the Lake Champlain Basin Program, discussed water quality impacts on Lake Champlain from the July 2023 floods in a *Barre Montpelier Times Argus* article.

Devon Case, environmental analyst, and **Richard Friesner**, director of Water Quality Programs, gave opening remarks at the National Nonpoint Source Training Workshop.

Katie Darr, environmental analyst and Lake Champlain Basin Program citizen advisory committee coordinator, served as keynote speaker at the Champlain Valley National Heritage Partnership's 14th International Summit.

Eric Howe, program director of the Lake Champlain Basin Program, presented as part of the EPA's Watershed Academy webcast, "Restoring Lake Champlain."

Michelle Jenkins, information officer, served on the planning team for the National Onsite Wastewater Recycling Association's Onsite Wastewater Mega Conference.

Daniel Miller, environmental analyst and Hudson River Estuary Program Habitat Restoration Coordinator, received the Outstanding Practitioner Award from the Hudson River Environmental Society in honor of his dedication to restoring Hudson River estuary habitats.

Lillian Zemba, environmental analyst, collaborated with the Tennessee Department of Environment and Conservation to plan and host an underground storage tank (UST) inspector training for UST regulators in EPA Region 4.



William (Bill) Patenaude NEIWPCCC trainer with the Wastewater and Onsite Programs division and retired environmental engineer at the Rhode Island Department of Environmental Management's Office of Water Resources,

received an EPA Lifetime Achievement Award for his contributions to the wastewater industry.

Patenaude founded RIDEM's Wastewater Leadership Boot Camp, a one-year professional and personal development program for municipal wastewater staff that has been replicated in every New England state and has advanced the professionalism of the industry.

New Executive Committee and Commission Leadership for FY 2023-24

Chairperson Jennifer Perry, bureau chief of the Materials Management and Compliance Assurance for the Connecticut Department of Energy and Environmental Protection. Perry previously served as vice chair. She is a licensed professional engineer with extensive experience in wastewater systems, ground water and surface water permitting, dam safety and infrastructure management.



Vice Chair Rene Pelletier, Water Division director with the New Hampshire Department of Environmental Services (NHDES). Bringing nearly 50 years of experience at the NHDES, Pelletier has provided oversight related to subsurface systems, alteration of terrain, drinking water and groundwater, wetlands, dams, wastewater engineering and watershed management.



Treasurer Harry Stewart, a role he has held since 2018. Stewart is a senior associate at Normandeau Associates in Bedford, New Hampshire where he works on diverse water-related projects and Clean Water Act regulatory and permitting issues. Previously, he served for 30 years at NHDES, including 16 years as Water Division director, as well as working for the U.S. EPA. Stewart previously served on the NEIWPCCC Executive Committee (16 years) and as NEIWPCCC chairperson.




Estuary Education

continued from page 12

was a field trip to Storm King Mountain, rising 1,300 feet above the Hudson River, and the associated art center. A park docent provided a tour of the 500-acre outdoor museum featuring large-scale land sculptures and explained how the designs focus on the changing

landscapes.

The next Hudson River TOTE workshop will be held this coming July and will explore farming, foraging, fishing and eating ecologically. Participants will be visiting Wild Hudson Valley, an agroforestry operation, to learn about foraging and native farming. Another field trip will head to the Radix Ecological Sustainability Center in

Albany, which promotes ecological literacy and environmental stewardship through educational programs based around demonstrations of sustainable technologies. Workshop registration and additional information is available on the Hudson River National Estuarine Research Reserve education website: <https://hrnerr.org/learn/teachers-educators/>. 



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EVENTS

April 2-4, **Northeast Conference on The Science of PFAS: Public Health & the Environment**, Marlborough, Mass., www.newmoa.org

April 3-4, **NEWWA Spring Joint Regional Conference & Expo**, Worcester, Mass., www.newwa.org

April 7-13, **National Water Week**, Washington, D.C., www.waterweek.us

April 9-12, **Collection Systems and Stormwater Conference**, Hartford, Conn., www.wef.org

April 10-11, **Annual Nonpoint Source (NPS) Conference**, Old Saybrook, Conn., www.neiwppcc.org

May 19-22, **NEWEA Spring Meeting**, Newport, R.I., www.newea.org

June 10-13, **American Water Works Association, ACE24**, Anaheim, Calif., www.awwa.org

June 19-20, **WEF Residuals and Biosolids Conference**, Oklahoma City, Okla., www.wef.org

July 23-26, **NACWA Utility Leadership Conference**, Buffalo, N.Y., www.nacwa.org

Oct. 27-Nov. 1, **12th U.S. Symposium on Harmful Algae**, Portland, Maine, www.neiwppcc.org

